# MEETING FUTURE AIRLIFT REQUIREMENTS: BRIEFING ON PRELIMINARY ANALYSIS OF COSTS OF ALTERNATIVE APPROACHES

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NOTE

All costs are in fiscal year 1985 budget authority dollars. Costs associated with retirement accrual accounting are not included in the cost summaries. Cumulative costs reflect the cumulative changes to the operating and support baseline costs of the 1988 programmed airlift fleet. All specifications regarding operating and support costs were provided by the Air Force.

# INTRODUCTION

- Department of Defense 1982 proposal for near term airlift enhancements

- Air Force 1983 plan for future airlift and airlift force structure

- Secretary of Defense 1984 endorsement of the C-17 aircraft and proposed force structure changes

## Introduction

The Air Force submitted a Request for Proposal to the aircraft industry in 1980 for a new intertheater airlift aircraft called the C-X. After evaluating the proposals submitted, the Air Force announced the McDonnell-Douglas C-17 as the selection. It became the Air Force position that the shortfall in airlift capability could best be met by procuring a future force mix of KC-10s and C-17s. In spite of this initial Air Force recommendation, the Department of Defense chose in its FY 1983 budget submission to the Congress to address the near-term intertheater requirement and requested funds for 44 KC-10 and 50 C-5B aircraft. Although this option did not provide all of the airlift capability that the Department of Defense felt was required, defense officials argued that it provided the best near-term solution to the airlift shortfall. After much debate, the Congress agreed to the request.

Funding for the C-17 research and development remained in the budget for fiscal years 1983 and 1984. The Congress and the Administration, however, significantly constrained the C-17 budget each year, appropriating $60 million in fiscal year 1983 ($59 million of which was to be taken from lower priority Air Force programs) and $26.8 million in fiscal year 1984. Although this level of funds was sufficient to keep the program alive and the aircraft design teams together, it did not signify a commitment on the part of the Administration or the Congress to procure a C-17 aircraft in the immediate future.

In September 1983, the Air Force published the Airlift Master Plan (AMP). The document was presented as the Air Force long-term plan for the effective management and employment of airlift assets. It recommended that the C-17 be procured as the future airlift aircraft. In conjunction with this, it recommended restructuring the airlift forces by retiring some of the older C-130s and C-141s and transferring the remaining C-141s into the reserves. On February 27, 1984, the Secretary of Defense forwarded to the Congress a report validating the requirement concepts and design of the C-17 aircraft. It is also an endorsement by the Secretary of the force structure plans recommended by the Air Force in the Airlift Master Plan.

## BACKGROUND

- Congressionally Mandated Mobility Study - airlift requirement of 66 million ton miles/day (MTM/D)

- Current and programmed airlift capability

- Long term investment plans

## Background

As part of the Department of Defense authorization act for 1981, the Congress required the Department to conduct a study to determine overall U.S. military mobility requirements. This study, known as the Congressionally Mandated Mobility Study (CMMS) was presented to the Congress in April 1981 and has since been accepted as the most current statement of total airlift needs for the United States. The study recommended that the United States strive to acquire an additional intertheater air transport capability equivalent to 20 Million Ton Miles per day (MTM/D) to achieve a goal of 66 MTM/D.

The current airlift fleet can achieve approximately 45 percent of the goal. Due to a shortage of spares for the C-5 and C-141 aircraft, they would not be able to sustain a wartime utilization rate of 12.5 hours per day. Any decrease in the sustained utilization rate below 12.5 hours per day decreases the overall fleet capability. Programmed enhancements to include additional spares for existing aircraft and additional C-5, KC-10, and CRAF aircraft will raise the fleet capability to 48.5 MTM/D by the end of the 1980s.

Long-term airlift enhancements are directed toward the 17.5 MTM/D difference between the late 1980s programmed capability and the CMMS goal. Retiring existing aircraft or failing to support C-5 and C-141 aircraft wartime utilization rates of 12.5 hours per day would increase the difference between the 66 MTM/D goal and the capability of the programmed fleet.

## QUESTIONS FOR THE CONGRESS

- Will budget limitations permit further additions to the airlift fleet?

- What long-term airlift fleet characteristics should the Congress pay for now?

- What is the future requirement for a tactical airlifter and how should that requirement be met?

## Questions for the Congress

Congressional concerns over budget deficits have resulted in defense budgets below the levels originally requested by the Administration. Before the Congress considers which airlift alternative is preferable, it will have to determine the extent of possible additions to the airlift fleet within current budget constraints.

If the Congress considers the requirement for additional airlift sufficiently urgent, the decisions pending action will affect the entire nature of the airlift fleet for at least the next 30 years. Aircraft entering the fleet during the end of this decade should still be operational in the airlift fleet beyond the year 2015. Some characteristics that the Congress may wish to see in the fleet then may have to be paid for now.

Decisions the Congress makes concerning intertheater airlift may not satisfy future needs for a tactical or intratheater airlifter. The majority of the C-130s in the fleet today will have to be replaced early in the next century. Although the C-17 offers some intratheater capability, it may not satisfy the need for a C-130 follow-on aircraft. Tactical airlift requirements are not well defined today, but there are no plans to eliminate the need for a C-130.

## PURPOSE OF THE BRIEFING

- Review the recommendation of the Airlift Master Plan
- Discuss alternatives for future airlift enhancement
- Discuss near term and longer term budgetary implications

## Purpose of the Briefing

The Airlift Master Plan provided a clear alternative for structuring the future airlift fleet. The foundation of the plan is the C-17 aircraft. Under the Air Force alternative, at least 180 of these aircraft will be procured before the end of the century. The Air Force views this as a modernization alternative that will meet the intertheater airlift requirement while allowing them to streamline the current fleet.

As an alternative to the Air Force plan, the Congress could choose to continue to procure existing aircraft, namely C-5s and KC-10s, to meet a specific airlift requirement. This alternative projects the strengths and limitations of current airlift into the future.

This briefing presents a comparison of near-term and long-term costs of two alternatives. Since both meet the mobility requirement of 66 MTM/day, the difference in cost between the two alternatives may be the decisive factor. Near-term costs tend to reflect the acquisition costs associated with each alternative. Long-term costs reflect the steady state operating and support costs of the alternatives. In a more thorough study to be released this summer, CBO will also examine alternatives that emphasize sealift investments as directed by the Committee. Time was not available to include this analysis in this briefing.

## INTERTHEATER AIRLIFT FLEET

| | Number (PAA) | Capability a/ (MTM/Day) |
|---|---|---|
| Current Fleet | | |
| C-5A | 70 | 12.0 |
| C-141B | 234 | 15.4 |
| CRAF | | |
| Wide Body | 39 | 6.0 |
| Narrow Body | 28 | 2.4 |
| Programmed Additions | | |
| C-5B | 44 | 7.5 |
| KC-10 | 41 | 4.5 |
| CRAF | 19 | 2.9 |
| Air Force Preferred Program | | |
| C-17 | 180 | 27.4 |

a. Capability represents the theoretical capability of the fleet when all aircraft are operated at wartime utilization rates and no aircraft are withheld for other JCS contingencies.

## Intertheater Airlift Fleet

The current fleet consists of a mix of C-5s, C-141Bs, and Civilian Reserve Air Fleet (CRAF) aircraft. The C-5 is designed to carry large bulky combat and support equipment over long distances and may be refueled in the air if necessary. It is the only aircraft in the fleet that can carry outsize cargo such as tanks. Built during the late 1960s and early 1970s, it provides the United States with a unique airlift capability unavailable to other nations. A typical C-5 squadron contains 18 aircraft each with a crew of six. Air Force manning policies require on the average 93 active-duty personnel and 64 reservists per aircraft.

The C-141B is the workhorse of the current fleet. Built in the early 1960s, it was designed to transport troops and equipment over long distances. It was not designed to carry outsize equipment like the C-5 but to carry other combat and support equipment such as personnel carriers and trucks. In the late 1970s, it was modified to allow aerial refueling and the fuselage was extended to allow it to transport more cargo. A typical squadron contains 18 aircraft each with a crew of five. Air Force manning policies require on the average 60 active-duty personnel and 50 reservists per aircraft.

The Civilian Reserve Air Fleet consists of commercial cargo aircraft currently operated by civilian carriers. In the event of mobilization, these aircraft will become available for transporting military cargo.

During the next five years, new C-5s and KC10s will be joining the airlift fleet. The new C-5s will increase the outsize cargo carrying capability of the fleet by over 60 percent. The KC-10 aircraft, a derivative of the commercial DC-10, can be used as an aerial tanker to refuel other deploying aircraft or as a cargo transport much as the 747s in the CRAF program. They cannot carry the outsize cargo, but they can carry most of the same cargo the C-141 can carry. A CRAF enhancement program is also planned. This is a government funded effort to modify commercial wide body passenger planes by equipping them with cargo carrying features such as stronger flooring and wider doors. They will continue to be operated by the airlines after they are modified.

The C-17 is the Air Force preference for future airlift. It is designed to carry the full range of combat and support equipment including outsize cargo as can the C-5, but not as much. When the C-17 was designed, the Air Force imposed operating requirements that will make the C-17 much more capable as a military transport. The Air Force wanted to expand the number of fields that can be used by the C-17 as compared to other transports. As such the Air Force plans to employ the C-17 not only as an intertheater airlifter but also as an intratheater airlifter. Technological improvements in the aircraft will allow it to operate with a crew of three. Plans are to organize C-17 squadrons with 16 aircraft, each requiring on the average 60 active-duty personnel and 37 reservists.

## CURRENT INTRATHEATER AIRLIFT FLEET

| | Number (PAA) | Capability (Tons/Day) |
|---|---|---|
| C-130A | 104 | 1,868 |
| C-130B | 80 | 1,437 |
| C-130D | 8 | 144 |
| C-130E | 237 | 4,257 |
| C-130H | 83 | 1,491 |
| TOTAL | 512 | 9,197 |

## Current Intratheater Airlift Fleet

The C-130 series aircraft was introduced into the fleet in the late 1950s. Various modifications have been applied to the aircraft over the years although the basic configuration of the aircraft remains unchanged. Designed primarily for transporting cargo over relatively short distances within a specific tactical theater, it has served as the workhorse of the intratheater fleet for over 20 years. Its utility has been its ability to resupply forward-deployed units with food, fuel, ammunition, and spare parts. Its use for special operations missions and for gunships attests to its versatility. New models of the C-130 will continue to provide tactical airlift capability over the next 30 years. The C-130 is operated by active-duty and reserve Air Force components. The C130-A model transports are currently in Air National Guard and Air Force Reserve units.

AIRCRAFT DESIGN CHARACTERISTICS

| | C-17 | C-5 | C-141 | KC-10 | C-130 |
|---|---|---|---|---|---|
| Outsize Load Capacity | Yes | Yes | No | No | No |
| Average Payload (tons) | 48.3 | 68.9 | 27.5 | 41.7 | 12.6 |
| 4,000-Foot Runway Landing | Yes | Yes | No | No | Yes |
| 3,000-Foot Runway Landing | Yes | Maybe[a] | No | No | Yes |
| Manpower per Aircraft | 97 | 157 | 110 | 38 | 46 |

a. Lockheed believes that the C-5 has a 3,000-foot runway landing capability although it was not a design characteristic of the aircraft.

## Aircraft Design Characteristics

Design characteristics of the aircraft differ. The C-5 because it is bigger than other aircraft can carry a larger average payload than the other aircraft. Also it can carry outsize equipment such as tanks, which no other aircraft, except the C-17, can carry.

Access to runways also varies by aircraft. The KC-10s and C-141s require longer runways while the C-5, C-130, and C-17 can operate on smaller runways often found in forward operating locations. This is an important feature when supporting Army units that are far forward in areas where road and rail travel is difficult.

Manpower per aircraft is also an important characteristic. Generally, the less manpower required per aircraft the lower the operating and support cost of the aircraft. When manpower is scarce or expensive, aircraft that are less manpower intensive may be more attractive.

CURRENT FLEET LIMITATIONS:

AIR FORCE ASSESSMENT

- Limitations on employment of C-5
- Age of the C-141B fleet
- Utility and age of the C-130 fleet

## Current Fleet Limitations: Air Force Assessment

All of the aircraft in the current fleet have limitations. The Air Force has indicated that the original design features and the 1960s technology used in the C-5 limit its flexibility in projected deployment situations. The costs to own and operate it are also high. The C-5 was designed to operate on runways at least 4,000 feet long and 90 feet wide and off runways when surroundings and soil conditions permit. Today the Air Force believes that this capability may not be sufficient for delivering cargo to forward operating locations. The design criteria for the C-17 specified 3,000 foot runways 90 feet wide. They also consider the ground maneuverability of the C-5 a limitation in areas where the taxiways are small or ramp space is limited. Life-cycle cost of the C-5 is considered high due primarily to the crew size and number of people necessary to support and maintain a C-5 squadron.

The C-141B is limited primarily by the cargo it can carry and the average age of the fleet. It has roughly 40 percent of the average combat cargo carrying capability of the C-5 and cannot carry outsize equipment. Useful service life of the aircraft is also a question. The Air Force believes that operating the aircraft at the current average peacetime operating rate of 3.2 hours per day will force the retirement of many of the aircraft by the end of the century.

The C-130 is limited primarily by its relatively slow speed and small load carrying capability. Although it serves admirably as a resupply aircraft delivering spare parts, ammunition, food, and fuel to forward locations, some have argued that its capability may be insufficient for certain contingency areas such as Southwest Asia where the delivery distances may be greater. Historically, however, the C-130 has provided more than adequate airlift support to forces deployed in numerous contingency areas. Age, however, is a limitation for many of the C-130 aircraft. Based on Air Force assessments, approximately 112 C-130 aircraft will have to be replaced near the turn of the century.

## AIR FORCE MASTER PLAN RECOMMENDATIONS

- Buy 180 C-17 transports beginning in 1988

- Conserve service life in C-141 fleet by transferring 180 to Reserve component

- Retire without replacement 180 C-130 tactical transports

## Air Force Master Plan Recommendations

The Air Force Master Plan combines procurement of C-17s and reorganization of existing assets to meet the 66 MTM/day goal and to minimize long-term ownership costs. The centerpiece of the plan is procurement of 180 (PAA) C-17 aircraft beginning in 1988 and continuing through the end of the century. In order to conserve the remaining service life of the C-141 fleet, the Air Force plan calls for transferring 180 C-141s into reserve units beginning in 1991. (Some 54 C-141s will be retired in the Air Force plan at the end of the 1990s because of age.) Reserve units operate aircraft at lower peacetime tempos than their active-duty counterparts; as such, the remaining service life of the C-141s is used up less quickly. However, conserving service life also reduces wartime capabilities, necessitating purchase of a larger number of C-17s than may otherwise be needed. Finally, the master plan calls for retirement without replacement of 180 C-130 transports. Although only 112 will have neared the end of their useful service life during the 1990s, the Air Force chose to reduce the size of the fleet further to conserve manpower spaces. The Air Force believes that the tactical contribution of the C-17 can make up for those C-130s retired.

While necessitating significant investment expenditures over the next ten years, the Air Force master plan seeks to minimize long-term life-cycle costs by several means. First, the C-17 is likely to be a significantly less expensive aircraft to own and operate because of special design features being incorporated. It will require smaller personnel complements and less maintenance. Second, shifting C-141s into the Reserve component will minimize peacetime operating costs. Finally, the C-130s not replaced free financial and manpower assets.

## FY 1985 PROGRAM DECISIONS

- Full-scale engineering development funds in FY 1985 budget request

- Will budget pressures permit new program starts?

- Are less expensive alternatives available?

- What long-term implications come from efforts to economize in the short term?

## FY 1985 Program Decisions

This year the Department of Defense has requested $129 million for the C-17 to allow full-scale engineering development of the aircraft. Although this is relatively small compared to the entire defense budget request, it implies a willingness on the part of DoD and the Congress to follow through with the C-17 program at a total acquisition cost of approximately $27 billion in fiscal year 1985 dollars.

Reducing the C-17 program request this year will contribute little to deficit reduction. On the other hand, approval of the budget request may signify a willingness on the part of the Congress to allow new program starts at the same time it is looking for ways to reduce defense spending as part of the deficit reduction measures being considered.

If the Congress judges that further investment in airlift is of sufficient priority, should funds be directed toward a new program or an extension of current production programs? The two alternatives considered in this analysis examine the costs of purchasing additional airlift capability through a new program (C-17) or continuing current programs (C-5, KC-10, C-130). A new transport offers military features the Air Force believes are necessary in the long run. Alternatively, extending the purchases of C-5s, KC-10s, and C-130s will lock in a force structure for the next 40 years that the Air Force believes cannot meet all mission requirements.

ALTERNATIVES

| | I<br>Air Force<br>Master Plan | II<br>Extended<br>Procurement Plan |
|---|---|---|
| C-17 | 180 | -- |
| C-5 | -- | 41 |
| KC-10 | -- | 129 |
| C-141 Retire | 54 | 54 |
| C-141 Reserves | 180<br>(2 crews each) | 180<br>(4 crews each) |
| C-130 | | |
| Retire | 180 | 112 |
| Replace | 0 | 112 |

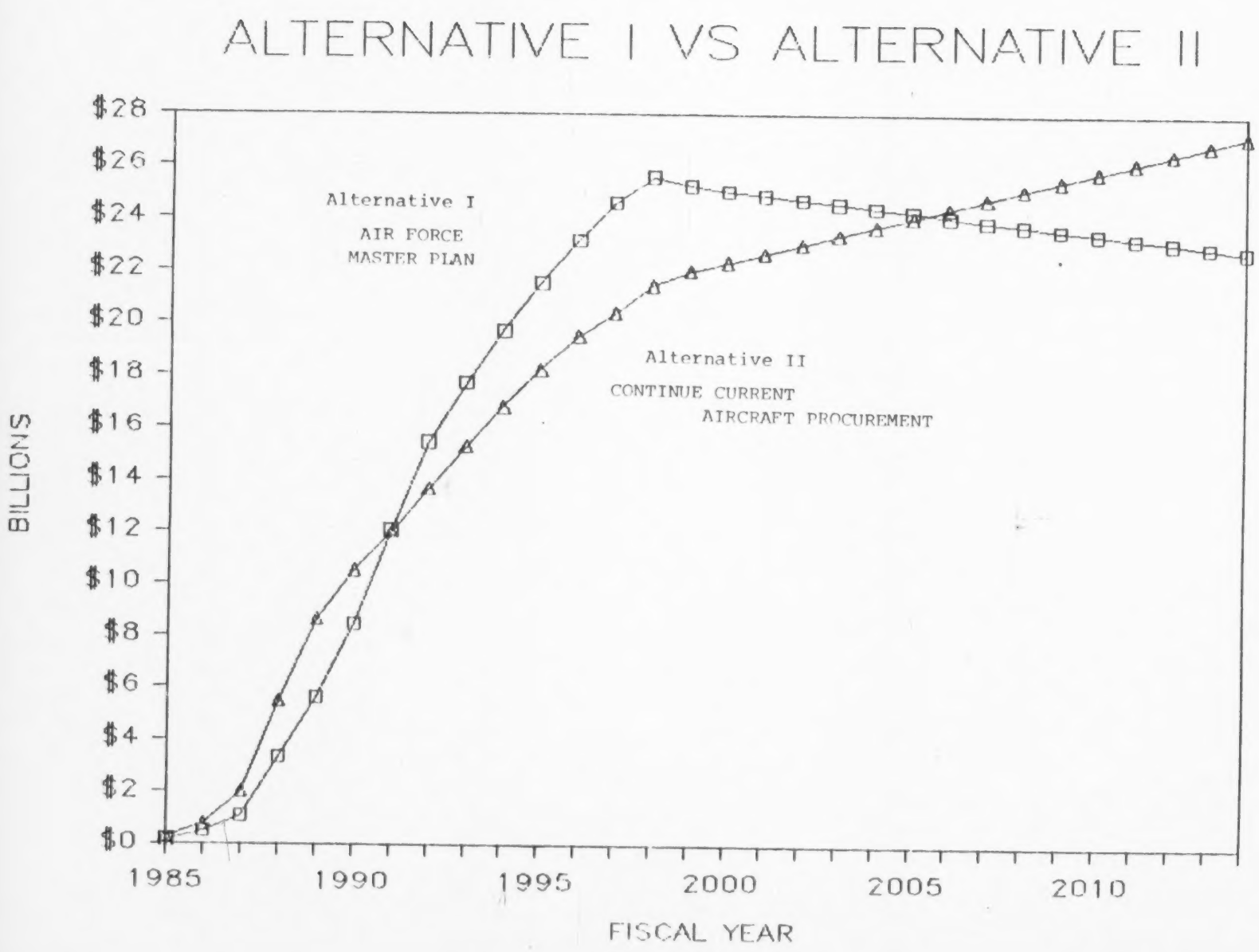
## Alternatives

Alternative I is the Airlift Master Plan recommendation. It procures 180 C-17s by 1998, retires 180 C-130s and 54 C-141s between 1991 and 1998 and transfers 180 C-141s to the reserve forces by 1998. It also reduces the operational capability of C-141s by reducing the ratio of air crews per aircraft to 2.0 from the current level of 4.0.

Alternative II continues procurement of the C-5, the KC-10, and the C-130 aircraft. The C-130 procurement continues at the current level of 10 aircraft per year to replace the aging 112 C-130s in the reserve forces. Beginning in 1988, an additional 41 (PAA) C-5 aircraft are procured to provide increased outsize capability to the airlift fleet. Also, 129 KC-10s are procured using a multiyear procurement scheme with the first aircraft delivered in fiscal year 1988. As in the Air Force plan, 54 of the C-141s are retired and the remaining 180 are transferred to the reserve forces. However, the operational capability of these planes are retained at the current level by continuing to operate them at an air crew to aircraft ratio of 4.0.

The proposal to place C-141s in the reserves is a contentious issue. The following slide evaluates what effect operating the C-141s at a 4.0 crew ratio versus the planned 2.0 crew ratio would have on the alternative cost. The second contentious issue raised by critics of the master plan concerns the use of C-17 as a tactical transport. That issue is also examined below.

FIGURE 1


ALTERNATIVE I VS ALTERNATIVE II
$28
$26
$24
$22
$20
$18
$16
$14
$12
$10
$8
$6
$4
$2
$0
BILLIONS
Alternative I
AIR FORCE
MASTER PLAN
Alternative II
CONTINUE CURRENT
AIRCRAFT PROCUREMENT
1985
1990
1995
2000
2005
2010
FISCAL YEAR

## Alternative I vs. Alternative II

Both alternatives provide the same quantitative transportation capabilities, though there are important qualitative differences which are discussed below. The primary quantitative feature distinguishing the two alternatives is cost.

The Air Force plan (Alternative I) is cheaper in the near term (see Figure 1). Over the next five years, the Air Force plan costs about $3 billion less than Alternative II. This occurs because the Air Force plan avoids buying 112 C-130 transports over the next 10 years. In addition, since Alternative II buys more of the C-5 and KC-10 aircraft that are already in production, procurement funding over the next five years would be greater than under the Air Force plan.

Over the next 20 years, however, the Air Force plan would be more expensive by about $0.7 billion or 3 percent. During this period, heavy procurement costs for the C-17 push up the costs of the Air Force plan.

Over the next 30 years, the Air Force plan would again be the cheapest by about $4.4 billion or 16 percent because of lower peacetime operating costs. The Air Force plan would operate 170 fewer aircraft than Alternative II and would have less costly C-17s rather than the mix of C-5 and KC-10s. Indeed, when all the new aircraft have been purchased and are in the fleet the Air Force plan would be approximately $500 million per year less expensive to operate than Alternative II.

Each alternative achieves long-term manpower savings, although in different ways. Alternative I offers active-duty manpower savings of over 3,000 spaces while requiring only a little over 300 additional reserve spaces. Alternative II, on the other hand, saves over 6,000 active-duty manpower spaces but requires nearly 12,000 additional reserve billets.

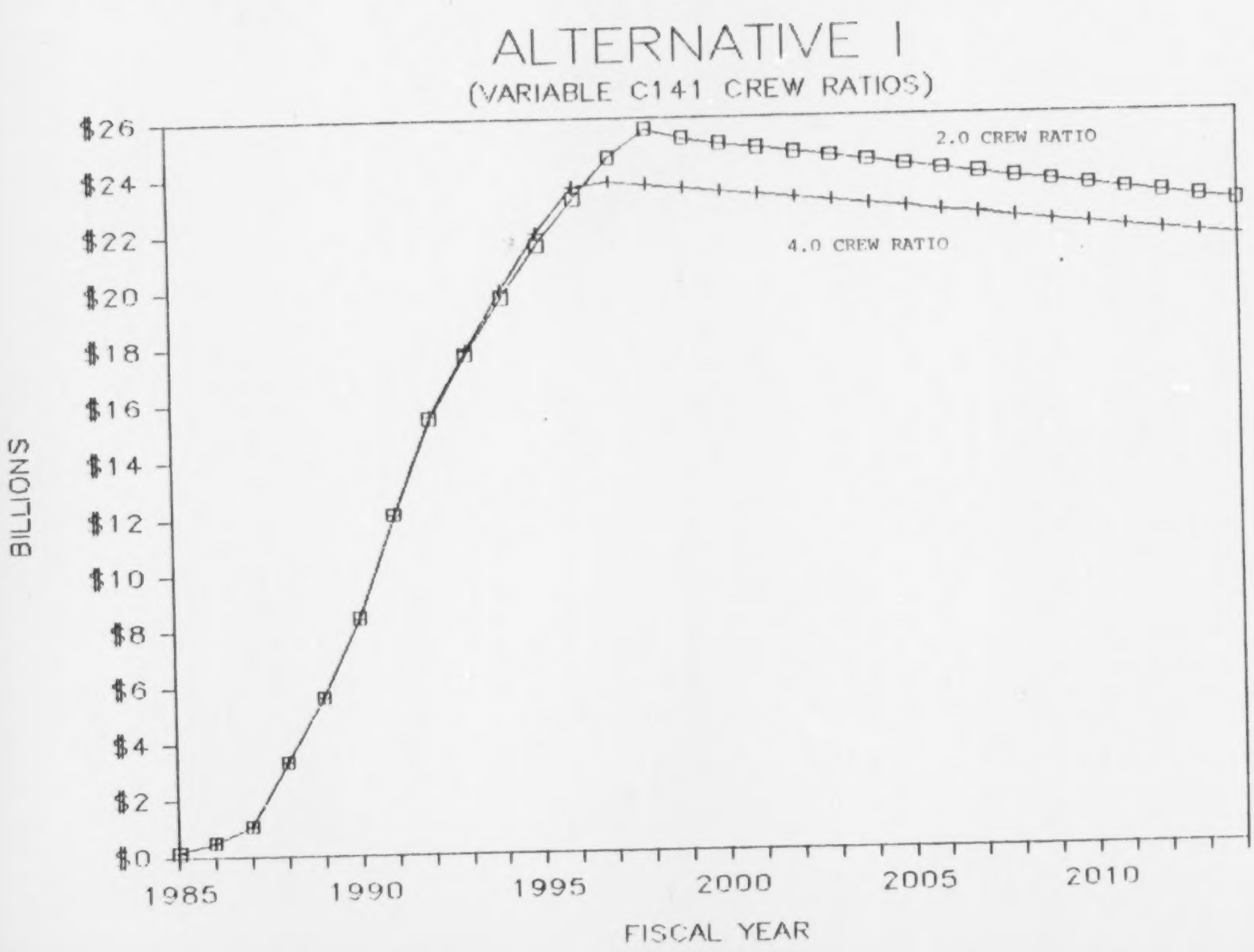
As noted above, while both alternatives provide the same quantitative transportation capability (66 million ton miles/day for intertheater operations and at least 9,000 tons/day for tactical operations) there are important qualitative differences between the two fleets, which tend to favor the Air Force plan. In Alternative I, 41 percent of the fleet capability would be provided by the C-17 which is designed to be a more flexible military asset. The C-17 represents a 15-year leap in technology over the C-5, incorporating updated electronic components and more efficient engines. Further, it embodies design features that reflect the benefits of 12 years of operating experience with the C-5s. Advances in avionics and cargo loading designs allow the C-17 to operate with a crew of three as opposed to the five or six found in other large military cargo aircraft.

Further, Alternative II avoids the use of additional KC-10 tanker/transports. The KC-10, while capable of carrying all the cargo carried in

the C-141, is substantially less flexible as a cargo transport. It requires specialized cargo handling equipment to load and unload, unlike the C-130, C-141, C-5, and C-17. Further, because of design features, it is limited to operate at only the larger airports with long runways with substantial load-bearing properties. This will constrain major airlift operations to a limited number of theater air bases.

Finally, it should be noted that while the KC-10s currently in production were purchased as cargo transports, they are being operated in peacetime by the Strategic Air Command as tankers. Since the Air Force maintains that its tanker requirements significantly exceed its current resources, even if the KC-10s are included, it is of some question whether added KC-10s would be available in a general war for airlift operations.

FIGURE 2


ALTERNATIVE I
(VARIABLE C141 CREW RATIOS)
2.0 CREW RATIO
4.0 CREW RATIO
BILLIONS
$26
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$18
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1985
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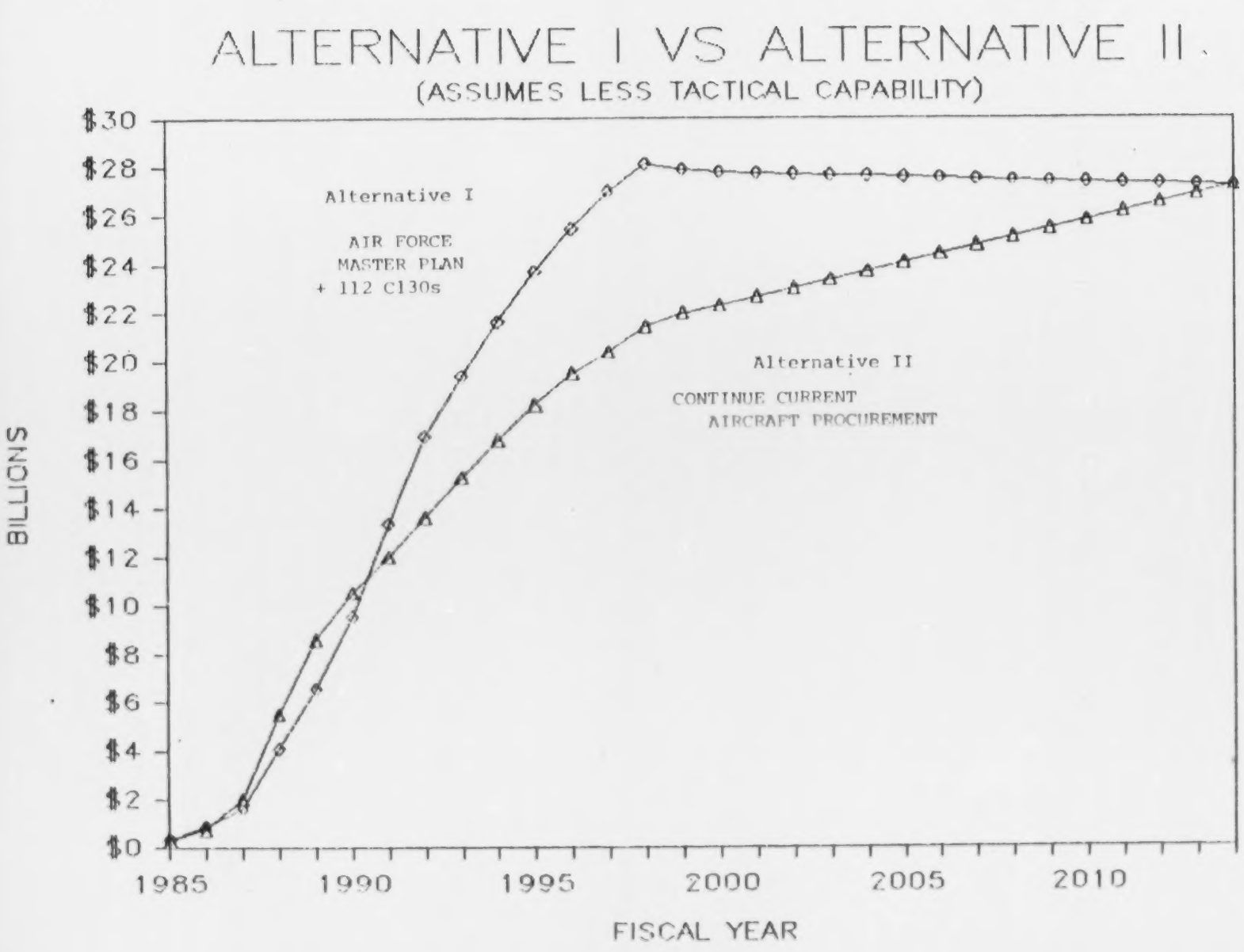
FISCAL YEAR

## Areas of Uncertainty: Use of C-141s

The Air Force master plan calls for transferring the C-141s into reserve units and operating them at half the current rate by providing only two crews per airplane instead of four per aircraft under current operating procedures. The Air Force adjudged this was necessary to conserve the remaining service life of the C-141. Critics of the master plan have argued that it also cuts back the contribution of the C-141 toward the 66 MTM/day airlift goal and inflates the number of C-17s required to meet that goal. The Air Force master plan calls for purchase of 180 PAA C-17 transports. If the crew ratio of the C-141 is retained at current levels, only 140 C-17s would be required to meet the airlift goal.

However, this has little effect on cumulative costs (see Figure 2). Over a 20-year period, retaining higher C-141 crew ratios and buying fewer C-17s would cost only 6.3 percent less than the Air Force plan. After 30 years, the alternative would be only 5 percent less than the Air Force plan. These cost projections do assume that all the C-141s remain in the reserves, so there is a significant difference in the composition of manpower between active-duty and reserve forces if C-141s are retained and operated at higher levels.

FIGURE 3


ALTERNATIVE I VS ALTERNATIVE II
(ASSUMES LESS TACTICAL CAPABILITY)
Alternative I
AIR FORCE
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CONTINUE CURRENT
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BILLIONS
$30
$28
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$18
$16
$14
$12
$10
$8
$6
$4
$2
$0
1985
1990
1995
2000
2005
2010
FISCAL YEAR

## Area of Uncertainty: C-17 as Tactical Transport

The second area of uncertainty concerns the projected use of the C-17 in tactical airlift operations and the feasibility of retiring 180 C-130 transports as a "fringe benefit" of proceeding with the C-17 program. The Air Force master plan suggests that the operational flexibility of the C-17 in tactical operations equals the capabilities of 180 C-130 transports. The C-17 was designed to fly directly from U.S. military bases to forward operating areas, avoiding the requirement to land at intermediate staging bases in the combat theater with C-130s ferrying cargo forward from that point. The Lockheed Corporation contends that the C-5 was designed to accomplish a parallel mission. No one contends that the KC-10 is capable of this mission.

There is a detailed tactical mobility requirements analysis underway in DoD. The analytic methods used in the Air Force master plan have been contested, and will be examined in greater detail in the more comprehensive CBO analysis that will be available later this summer. In order to demonstrate the impact of less optimistic assumptions, CBO examined the cost implications on the Air Force alternative of buying replacement C-130s for those early model transports in Guard and Reserve units that are reaching the end of their service lives over the next ten years. For this analysis, CBO has assumed that the Air Force will have to replace at least 112 of the oldest aircraft in the C-130 fleet.

As seen in Figure 3, amending the Air Force program to include replacement C-130s does not substantially affect near-term costs, but does prolong the period until Alternative I would be less expensive--until the year 2014. This amended program would increase the acquisition costs of Alternative I by 8 percent and the operating and support costs by 10 percent.

FIVE-YEAR PROGRAM COSTS a/

(Millions of current dollars, by fiscal year)

| | 1985 | 1986 | 1987 | 1988 | 1989 | Total |
|---|---|---|---|---|---|---|
| Alternative I (Airlift master plan) | 129 | 364 | 637 | 2,620 | 2,736 | 6,486 |
| Alternative Ia (C-141 4.0 crew ratio) | 129 | 364 | 637 | 2,620 | 2,736 | 6,486 |
| Alternative Ib (Supplemented by 112 C-130s) | 313 | 558 | 841 | 2,834 | 2,960 | 7,506 |
| Alternative II (C-5, KC-10, C-130) | 252 | 504 | 1,262 | 3,788 | 3,605 | 9,501 |

a. Purchases of the 50 C-5s and 44 KC-10s currently underway are not included.

## Five-Year Program Costs

This slide presents a comparison of the (largely investment) costs associated with the two primary alternatives and with the amended Air Force master plan alternative (marked Alternative Ia and Ib). The Air Force alternative requires the lowest level of resources over the next five years. The Alternative I spending path was incorporated in the fiscal years 1985-1989 five-year plan. It is unclear at this stage whether changes to that plan consistent with the President's directives to trim $57 billion over the next three years will have an impact on the C-17 profile. If the Congress chooses to proceed with Alternative II, it would increase funding requirements and raise deficits, rather than decrease them in the near term.

Alternative Ia is identical in cost over the next five years to Alternative I because the transfer of C-141s to reserve units would not begin until 1991. Alternative Ib is somewhat higher than I because it includes purchase of C-130 transports in a production profile identical to that incorporated in Alternative II. Alternative II represents primarily investment expenditures, but does include operating and support costs for some of the KC-10s that would enter the fleet as early as 1988.

COST SUMMARY

(Billions of constant 1985 dollars)

| | Total Costs 1985-1989 | Total Costs 1985-2004 | Total Costs 1985-2014 |
|---|---|---|---|
| Alternative I | 5.6 | 24.4 | 22.8 |
| Alternative Ia | 5.6 | 22.9 | 21.6 |
| Alternative Ib | 6.5 | 27.6 | 27.2 |
| Alternative 2 | 8.6 | 23.7 | 27.2 |

## Cost Summary

The cost summary shows cumulative expenditure projections for each alternative after 5, 20, and 30 years. The cumulative cost of Alternative I decreases between the 20-year mark and the 30-year mark. This is caused by the lower operating and support costs of Alternative I relative to current operating and support costs. All costs are additions to costs for operating existing forces and completing current investment plans. Since the Air Force alternative would operate fewer aircraft compared to the current baseline, cumulative costs decrease gradually in the future. During the same period, the cumulative costs of Alternative II steadily increase.

None of these costs incorporate discounting. Each alternative will be evaluated on a discounted basis later in the final CBO report.

## CONCLUSIONS

- Any airlift additions uncertain in current budget environment

- Air Force program represents least cost alternative in near term and very long term, but is more expensive in the mid-term (between 5 and 20 years)

- Tactical role of C-17s in future fleet is most important area of uncertainty

## Conclusions

This analysis suggests a decision by the Congress to expand airlift resources over the next five years will lead to significant near-term and long-term costs. Any further investment in airlift will entail difficult choices in a period of relative budget austerity. The Air Force alternative was included in the current budget and five-year plan, but may be amended in light of pending efforts by DoD to trim $57 billion over the next three years from the budget.

One alternative to the C-17--continuing production of C-5 and KC-10 aircraft beyond current plans--is more expensive than the Air Force program over the next five years. After 1991, however, this alternative would be significantly less expensive for a period of 14 to 23 years. The range of uncertainty reflects questions over the tactical contributions of the C-17. Those questions will be evaluated in a more comprehensive manner in a forthcoming detailed CBO report.